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ABSTRACT

This report presents projections of classroom teaching positions in kindergarten through grade 12 for regular day public schools in New York State. The report is organized in three sections, each consisting of three tables. Tables 1-3 display projections of: (1) the classroom teaching force; (2) classroom teacher vacancies; and (3) vacancies to be filled by new teachers through 1991-92 for the total State. The same projections are shown for the New York City public schools in tables 4-6 and for the State exclusive of New York City in tables 7-9. Also included are the number of provisional teaching certificates issued in selected years from 1968 to 1986. Appendixes discuss methodology and offer projections as percentages. (JD)

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Projections of

PUBLIC SCHOOL CLASSROOM TEACHERS

NEW YORK STATE

1987-88 TO 1991-92

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FOREWORD

This report presents projections of classroom teaching positions in kindergarten through Grade 12 for regular day public schools in New York State. Excluded are positions in prekindergarten, nonpublic schools and Boards of Cooperative Educational Services (BOCES).

There were three basic assumptions underlying the projections of classroom teachers needed for 1987-88 through 1991-92, namely:

1. The numbers of teachers in all subject areas in the base year, 1986-87, were adequate to meet the educational needs of the public schools of the State;

2. The number of teachers needed is largely determined by the number of students enrolled;

3. Additional teachers will be required in selected subject areas for the implementation of the Regents Action Plan.

No assumptions were made concerning future economic, social or political conditions which might impact on need for teachers. A complete description of the methodology is attached as Appendix A. Additional detailed technical reports on teacher retention rates, age distribution and median age trends by major subject area, are available on request.

The report is organized in three sections, each consisting of three tables. Tables 1-3 display projections of (1) the classroom teaching force, (2) classroom teacher vacancies and (3) vacancies to be filled by new teachers through 1991-92 for the total State. The same projections are shown for the New York City public schools in tables 4-6 and the State exclusive of New York City in tables 7-9. Also included are the number of provisional teaching certificates issued in selected years from 1968 to 1986 (Table 10).

HIGHLIGHTS

- The number of teachers is projected to increase from 168,703 to 178,485 between 1986-87 and 1991-92 (table 1).

- In New York City, the number of teachers is expected to increase by 4,794 over the five year period (table 4) while the remainder of the State shows an anticipated increase of 4,988 (table 7).

- Of the estimated 169,698 teaching positions in the State's public schools in 1987-88, 16,833 will be vacancies needed to be filled (table 2). Cumulative vacancies over the five-year period are estimated to be 89,075. Cumulative vacancies are projected to be 41,867 in New York City and 47,208 outside New York City (tables 5 and 8).

- Of the 89,075 anticipated vacant positions to be filled between 1987-88 and 1991-92, 25,941, or 29 percent of those positions, are expected to be filled by new teachers. The remaining 63,134 vacancies will be filled by experienced teachers not currently employed in the public school sector.

TABLE 1
TRENDS AND PROJECTIONS OF PUBLIC SCHOOL CLASSROOM TEACHERS
NEW YORK STATE
1983-84 TO 1991-92

Subject Area	Number of Teachers (Full-time Equivalent)								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	5,301	5,787	6,323	6,329	6,513	6,663	6,828	7,135	7,366
Common Branch	42,524	42,629	43,884	43,976	44,664	45,409	45,970	46,521	47,231
Other [a]	6,015	6,254	6,825	6,824	6,927	7,043	7,131	7,216	7,327
Total	53,840	54,670	57,032	57,129	58,104	59,115	59,929	60,872	61,924
Secondary (7-12)									
English	12,111	11,985	11,912	11,503	11,282	11,043	10,924	10,933	10,964
Foreign Languages	4,335	4,516	4,901	5,147	5,779	7,637	7,686	7,398	7,437
Mathematics	11,546	11,459	11,268	11,227	11,210	11,188	11,335	11,671	11,809
Science	9,455	9,500	9,731	9,711	9,672	9,661	9,766	10,005	10,037
Social Studies	10,003	9,946	9,948	9,850	9,699	10,774	10,685	10,706	10,745
Occupational Education	9,129	8,749	9,171	9,574	9,327	9,061	8,896	8,837	8,863
Other [b]	12,955	13,137	12,962	13,235	13,012	12,770	12,714	12,854	13,025
Total	69,534	69,292	69,893	70,247	69,981	72,134	72,006	72,404	72,880
Combined Elementary and Secondary (K-12)									
Special Education	19,376	20,633	21,336	21,561	21,672	21,754	21,963	22,231	22,470
Physical Education and Recreation	7,778	7,815	7,963	8,056	8,123	8,210	8,347	8,507	8,658
Library	2,738	2,770	2,773	2,874	2,898	2,942	3,005	3,077	3,145
Reading	5,789	5,868	5,759	5,766	5,829	5,876	5,956	6,054	6,149
Bilingual Education	2,847	2,926	3,129	3,070	3,091	3,113	3,148	3,198	3,259
Total	38,528	40,012	40,960	41,327	41,613	41,895	42,419	43,067	43,681
GRAND TOTAL	161,902	163,974	167,885	168,703	169,698	173,144	174,354	176,343	178,485

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

NOTE: BOCES teachers are not included.

TABLE 2
TRENDS AND PROJECTIONS OF PUBLIC SCHOOL CLASSROOM TEACHER POSITION VACANCIES
NEW YORK STATE
1983-84 TO 1991-92

Subject Area	Number of Position Vacancies (Full-time Equivalent)								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	1,343	960	1,078	614	798	765	777	922	864
Common Branch	3,240	3,625	4,848	3,725	4,448	4,487	4,305	4,299	4,473
Other [a]	532	786	1,122	682	803	821	800	802	839
Total	5,115	5,371	7,048	5,021	6,049	6,073	5,882	6,023	6,176
Secondary (7-12)									
English	859	976	1,015	719	874	818	913	1,021	1,035
Foreign Languages	443	587	829	722	1,138	2,410	762	427	728
Mathematics	1,048	810	774	939	960	941	1,101	1,298	1,123
Science	619	735	1,027	773	782	803	916	1,057	863
Social Studies	517	600	731	689	678	1,898	809	921	946
Occupational Education	511	470	1,275	1,278	692	648	721	813	891
Other [b]	665	1,463	1,049	1,518	1,095	1,039	1,187	1,365	1,401
Total	4,662	5,641	6,700	6,638	6,219	8,557	6,409	6,902	6,987
Combined Elementary and Secondary (K-12)									
Special Education	3,980	3,391	3,090	2,629	2,509	2,471	2,591	2,658	2,649
Physical Education and Recreation	432	576	693	711	723	745	797	832	840
Library	289	281	277	376	316	333	354	364	365
Reading	398	598	460	623	693	675	707	727	730
Bilingual Education	436	345	455	250	324	325	341	356	373
Total	5,535	5,191	4,975	4,589	4,565	4,549	4,790	4,937	4,957
GRAND TOTAL	15,312	16,203	18,723	16,248	16,833	19,179	17,081	17,862	18,120

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

NOTE: BOCES teachers are not included.

TABLE 3
TRENDS AND PROJECTIONS OF CLASSROOM TEACHER POSITIONS TO BE FILLED BY NEW TEACHERS
NEW YORK STATE
1983-84 TO 1991-92

Subject Area	Number of Teachers (Full-time Equivalent)								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	88	151	230	206	295	278	281	337	321
Common Branch	361	729	1,238	1,106	1,353	1,375	1,329	1,323	1,382
Other [a]	78	120	234	221	258	262	255	255	267
Total	527	1,000	1,702	1,533	1,906	1,915	1,865	1,915	1,970
Secondary (7-12)									
English	110	203	288	246	305	286	318	353	357
Foreign Languages	58	85	196	218	369	764	243	135	234
Mathematics	174	277	334	255	262	257	299	353	306
Science	147	188	371	308	308	317	364	423	341
Social Studies	63	118	243	230	229	628	273	308	316
Occupational Education	156	150	212	244	135	127	140	158	172
Other [b]	207	246	356	326	252	234	274	322	326
Total	915	1,267	2,000	1,827	1,860	2,613	1,911	2,052	2,052
Combined Elementary and Secondary (K-12)									
Special Education	825	889	857	725	716	709	742	765	769
Physical Education and Recreation	75	122	141	145	150	155	167	174	174
Library	26	21	37	41	36	39	41	42	43
Reading	33	58	66	63	69	68	71	73	73
Bilingual Education	55	78	144	118	151	153	160	167	175
Total	1,014	1,168	1,245	1,092	1,122	1,124	1,181	1,221	1,234
GRAND TOTAL	2,456	3,435	4,947	4,452	4,888	5,652	4,957	5,188	5,256

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

NOTE: BOCES teachers are not included.

TABLE 4
TRENDS AND PROJECTIONS OF PUBLIC SCHOOL CLASSROOM TEACHERS
NEW YORK CITY
1983-84 TO 1991-92

Subject Area	Number of Teachers (Full-time Equivalent)								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	2,075	2,236	2,510	2,374	2,441	2,464	2,484	2,584	2,674
Common Branch	12,830	13,166	14,105	13,857	14,106	14,415	14,664	14,861	15,150
Other [a]	1,651	1,751	2,272	2,243	2,273	2,322	2,363	2,394	2,441
Total	16,556	17,153	18,887	18,474	18,820	19,201	19,511	19,839	20,265
Secondary (7-12)									
English	3,420	3,332	3,431	3,232	3,240	3,248	3,256	3,264	3,272
Foreign Languages	1,271	1,317	1,430	1,434	1,727	2,357	2,378	2,272	2,309
Mathematics	3,438	3,402	3,414	3,304	3,321	3,333	3,388	3,483	3,597
Science	2,504	2,505	2,588	2,539	2,550	2,561	2,572	2,583	2,594
Social Studies	2,693	2,699	2,803	2,808	2,838	3,290	3,320	3,350	3,381
Occupational Education	2,701	2,519	2,576	2,642	2,650	2,658	2,666	2,674	2,682
Other [b]	2,930	3,088	3,213	3,627	3,664	3,692	3,768	3,890	4,035
Total	18,957	18,862	19,455	19,586	19,990	21,139	21,348	21,516	21,870
Combined Elementary and Secondary (K-12)									
Special Education	10,552	11,164	11,212	10,907	10,870	10,881	10,937	11,063	11,242
Physical Education and Recreation	1,753	1,777	1,882	1,928	1,937	1,948	1,967	1,996	2,035
Library	615	628	619	667	671	675	681	692	705
Reading	1,801	1,852	1,821	1,771	1,792	1,802	1,819	1,846	1,882
Bilingual Education	2,370	2,404	2,551	2,517	2,518	2,533	2,557	2,595	2,645
Total	17,091	17,825	18,085	17,790	17,788	17,839	17,961	18,192	18,509
GRAND TOTAL	52,604	53,840	56,427	55,850	56,598	58,179	58,820	59,547	60,644

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

TABLE 5
TRENDS AND PROJECTIONS OF PUBLIC SCHOOL CLASSROOM TEACHER POSITION VACANCIES
NEW YORK CITY
1983-84 TO 1991-92

Subject Area	Number of Position Vacancies (Full-time Equivalent)								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	1,031	419	561	179	369	331	327	409	409
Common Branch	2,037	2,046	2,608	1,499	2,000	2,091	2,065	2,040	2,152
Other [a]	308	312	723	253	314	340	340	337	359
Total	3,376	2,777	3,892	1,931	2,683	2,762	2,732	2,786	2,920
Secondary (7-12)									
English	423	358	529	275	461	459	460	460	461
Foreign Languages	210	204	273	156	448	813	266	142	275
Mathematics	465	354	395	363	471	463	504	550	578
Science	341	269	391	267	331	337	340	345	349
Social Studies	370	273	409	356	391	822	468	471	477
Occupational Education	287	188	398	403	364	368	368	369	369
Other [b]	332	571	525	867	549	544	595	652	692
Total	2,428	2,217	2,920	2,687	3,015	3,806	3,001	2,989	3,201
Combined Elementary and Secondary (K-12)									
Special Education	2,608	1,881	1,500	1,095	1,331	1,374	1,420	1,497	1,567
Physical Education and Recreation	165	191	270	261	239	245	253	267	282
Library	77	99	63	134	97	96	98	102	107
Reading	224	286	203	260	324	314	323	335	347
Bilingual Education	361	251	355	215	245	259	270	282	298
Total	3,435	2,708	2,391	1,965	2,236	2,288	2,364	2,483	2,601
GRAND TOTAL	9,239	7,702	9,203	6,583	7,934	8,856	8,097	8,258	8,722

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

TABLE 6
TRENDS AND PROJECTIONS OF CLASSROOM TEACHER POSITIONS TO BE FILLED BY NEW TEACHERS
NEW YORK CITY
1983-84 TO 1991-92

Subject Area	Number of Teachers (Full-time Equivalent)								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	52	85	115	86	177	159	157	196	196
Common Branch	227	420	767	585	781	816	806	796	840
Other [a]	12	33	101	68	84	91	91	90	96
Total	291	538	983	739	1,042	1,066	1,054	1,082	1,132
Secondary (7-12)									
English	27	79	162	101	170	169	170	170	170
Foreign Languages	18	30	74	63	180	326	107	57	110
Mathematics	52	113	164	101	131	129	140	153	160
Science	29	61	130	97	120	123	124	126	127
Social Studies	18	57	152	125	138	289	165	166	168
Occupational Education	37	41	75	82	75	75	75	76	76
Other [b]	32	56	154	99	62	62	68	74	79
Total	213	437	911	668	876	1,173	849	822	890
Combined Elementary and Secondary (K-12)									
Special Education	476	533	454	354	431	444	459	484	507
Physical Education and Recreation	12	26	46	36	33	34	35	37	39
Library	3	2	4	7	5	5	5	5	6
Reading	15	22	30	22	28	27	28	29	30
Bilingual Education	46	58	118	103	117	124	129	135	142
Total	552	641	652	522	614	634	656	690	724
GRAND TOTAL	1,056	1,616	2,546	1,929	2,532	2,873	2,559	2,594	2,746

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

TABLE 7
TRENDS AND PROJECTIONS OF PUBLIC SCHOOL CLASSROOM TEACHERS
NEW YORK STATE EXCLUSIVE OF NEW YORK CITY
1983-84 TO 1991-92

Subject Area	Number of Teachers (Full-time Equivalent)								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	3,226	3,551	3,813	3,955	4,072	4,199	4,344	4,551	4,692
Common Branch	29,694	29,463	29,779	30,119	30,558	30,994	31,306	31,660	32,081
Other [a]	4,364	4,503	4,553	4,581	4,654	4,721	4,768	4,822	4,886
Total	37,284	37,517	38,145	38,655	39,284	39,914	40,418	41,033	41,659
Secondary (7-12)									
English	8,691	8,653	8,481	8,271	8,042	7,795	7,668	7,669	7,692
Foreign Languages	3,064	3,199	3,471	3,713	4,052	5,280	5,308	5,126	5,128
Mathematics	8,108	8,057	7,854	7,923	7,889	7,855	7,947	8,188	8,212
Science	6,951	6,995	7,143	7,172	7,122	7,100	7,194	7,422	7,443
Social Studies	7,310	7,247	7,145	7,042	6,861	7,484	7,365	7,356	7,364
Occupational Education	6,428	6,230	6,595	6,932	6,677	6,403	6,230	6,163	6,181
Other [b]	10,025	10,049	9,749	9,608	9,348	9,078	8,946	8,964	8,990
Total	50,577	50,430	50,438	50,661	49,991	50,995	50,658	50,888	51,010
Combined Elementary and Secondary (K-12)									
Special Education	8,824	9,469	10,124	10,654	10,802	10,873	11,026	11,168	11,228
Physical Education and Recreation	6,025	6,038	6,081	6,128	6,186	6,262	6,380	6,511	6,623
Library	2,123	2,142	2,154	2,207	2,227	2,267	2,324	2,385	2,440
Reading	3,988	4,016	3,938	3,995	4,037	4,074	4,137	4,208	4,267
Bilingual Education	477	522	578	553	573	580	591	603	614
Total	21,437	22,187	22,875	23,537	23,825	24,056	24,458	24,875	25,172
GRAND TOTAL	109,298	110,134	111,458	112,853	113,100	114,965	115,534	116,796	117,841

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

NOTE: BOCES teachers are not included.

TABLE 8
TRENDS AND PROJECTIONS OF PUBLIC SCHOOL CLASSROOM TEACHER POSITION VACANCIES
NEW YORK STATE EXCLUSIVE OF NEW YORK CITY
1983-84 TO 1991-92

Subject Area	Number of Position Vacancies (Full-time Equivalent)								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	312	541	517	435	429	434	450	513	455
Common Branch	1,203	1,579	2,240	2,226	2,448	2,396	2,240	2,259	2,321
Other [a]	224	474	399	429	489	481	460	465	480
Total	1,739	2,594	3,156	3,090	3,366	3,311	3,150	3,237	3,256
Secondary (7-12)									
English	436	618	486	444	413	359	453	561	574
Foreign Languages	233	383	556	566	690	1,597	496	285	453
Mathematics	583	456	379	576	489	478	597	748	545
Science	278	466	636	506	451	466	576	712	514
Social Studies	147	327	322	333	287	1,076	341	450	469
Occupational Education	224	282	877	875	328	280	353	444	522
Other [b]	333	892	524	651	546	495	592	713	709
Total	2,234	3,424	3,780	3,951	3,204	4,751	3,408	3,913	3,786
Combined Elementary and Secondary (K-12)									
Special Education	1,372	1,510	1,590	1,534	1,178	1,097	1,171	1,161	1,082
Physical Education and Recreation	267	385	423	450	484	500	544	565	558
Library	212	182	214	242	219	237	256	262	258
Reading	174	312	257	363	369	361	384	392	383
Bilingual Education	75	94	100	35	79	66	71	74	75
Total	2,100	2,483	2,584	2,624	2,329	2,261	2,426	2,454	2,356
GRAND TOTAL	6,073	8,501	9,520	9,665	8,899	10,323	8,984	9,604	9,398

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

NOTE: BOCES teachers are not included.

TABLE 9
TRENDS AND PROJECTIONS OF CLASSROOM TEACHER POSITIONS TO BE FILLED BY NEW TEACHERS
NEW YORK STATE EXCLUSIVE OF NEW YORK CITY
1983-84 TO 1991-92

Subject Area	Number of Teachers (Full-time Equivalent)								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	36	66	115	120	118	119	124	141	125
Common Branch	134	309	471	521	572	559	523	527	542
Other [a]	66	87	133	153	174	171	164	165	171
Total	236	462	719	794	864	849	811	833	838
Secondary (7-12)									
English	83	124	126	145	135	117	148	183	187
Foreign Languages	40	55	122	155	189	438	136	78	124
Mathematics	122	164	170	154	131	128	159	200	146
Science	118	127	241	211	188	194	240	297	214
Social Studies	45	61	91	105	91	339	108	142	148
Occupational Education	119	109	137	162	60	52	65	82	96
Other [b]	175	190	202	227	190	172	206	248	247
Total	702	830	1,089	1,159	984	1,440	1,062	1,230	1,162
Combined Elementary and Secondary (K-12)									
Special Education	349	356	403	371	285	265	283	281	262
Physical Education and Recreation	63	96	95	109	117	121	132	137	135
Library	23	19	33	34	31	34	36	37	37
Reading	18	36	36	41	41	41	43	44	43
Bilingual Education	9	20	26	15	34	29	31	32	33
Total	462	527	593	570	508	490	525	531	510
GRAND TOTAL	1,400	1,819	2,401	2,523	2,356	2,779	2,398	2,594	2,510

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

NOTE: BOCES teachers are not included.

TABLE 10

NUMBER OF PROVISIONAL TEACHING CERTIFICATES ISSUED
NEW YORK STATE
1968 TO 1986

Certification Area	Year							
	1968	1970	1974	1976	1980	1984	1985	1986
Elementary	9,414	14,643	16,228	10,901	6,374	6,733	5,964	5,402
English	2,355	3,057	2,792	1,411	774	816	772	881
Social Studies	3,749	3,218	2,644	1,620	704	723	699	791
Mathematics	1,920	1,616	1,487	905	458	700	845	758
Foreign Languages	2,111	1,909	1,598	1,047	494	472	617	684
Sciences	3,571	2,997	2,275	1,557	551	1,050	1,231	1,392
Art	841	1,149	1,442	941	541	474	406	475
Business	491	855	695	439	394	422	350	206
Industrial Arts	327	632	485	364	276	209	174	159
Home Economics	545	569	474	332	187	132	105	135
Music	759	883	905	812	746	736	600	689
Physical Education	1,164	1,518	2,057	1,412	1,051	924	711	650
Health	322	419	590	353	217	198	156	166
Vocational	--	200	259	301	161	193	206	359
Handicapped	562	948	839	1,644	3,420	3,493	3,166	2,721
Total	28,131	34,613	34,770	24,039	16,348	17,275	16,002	15,468

APPENDIX A

METHODOLOGY FOR PROJECTIONS OF PUBLIC SCHOOL CLASSROOM TEACHER NEEDS FOR MAJOR SUBJECT AREAS AND FOR TEACHER POSITIONS TO BE FILLED

There were three basic assumptions underlying the projections of classroom teachers needed for 1987-88 through 1991-92. They are:

1. The numbers of teachers in all subject areas in the base year, 1986-87, were adequate to meet the educational needs of the public schools of the State.

2. The number of teachers needed is largely determined by the number of students enrolled.

3. Additional teachers will be required in selected subject areas for the implementation of the Regents Action Plan.*

No assumptions were made concerning future economic, social or political conditions which might impact on need for teachers.

The overall projection strategy was to develop independent projections for New York City and for the State exclusive of New York City. The two projections were added to arrive at a total New York State projection. Projections were done for fifteen major subject areas grouped within grade-level ranges: elementary, secondary and elementary/secondary combined.

The first step in the projection process for each of the two geographic sectors was to examine the trends in pupil/teacher ratios for each subject area for 1980-81 through 1986-87. In most cases, pupil/teacher ratios have been decreasing over the last seven years and these trends were extrapolated for 1987-88 through 1991-92 by projecting further slight decreases in the ratios. In a few subject areas, the pupil/teacher ratios have remained relatively constant and, in such cases, the ratios were held constant for 1987-88 through 1991-92.

Following the projection of pupil/teacher ratios, the number of teachers required for each year in each subject area was projected by dividing projected enrollment** for the appropriate grade level by the projected pupil/teacher ratio for a given year. For example, the projected pupil/teacher ratio for secondary English for 1991-92 in New York City was 122.0. Dividing projected enrollment in New York City in grades 7-12 in 1991-92 (399,473) by 122.0 resulted in 3,272 secondary English teachers for 1991-92.

It should be noted that appropriate projected enrollment bases were used to project teachers at four different levels: kindergarten enrollment for kindergarten teachers, Grade 1-6 enrollment for common branch and "other elementary" teachers, grade 7-12 enrollment for secondary subject area teachers and grade K-12 enrollment for combined elementary/secondary subject teachers, except special education. Special education teachers were projected based on the historic ratio of special education teachers to enrollment of ungraded handicapped students. These trends were extrapolated and applied to projected enrollment.

After teachers in each subject area were projected, they were added to the appropriate grade-level subgroups and then to a grand total. Total New York State projections were computed by adding New York City projections to the projections of teachers in the remainder of the state.

Following the projection of teacher need, by subject area, through 1991-92, a projection of current teachers expected to remain in the profession through 1991-92 was done.

The most recent file of classroom teachers was compared with the file for the prior year to determine what proportion of teachers appeared on both files. In other words, it was determined what proportion of teachers remained as teachers in New York State from one year to the next. This proportion, or retention rate, was determined for each major subject area for the following age groups: under 35, 35-39, 40-44, 45-49, 50-54, 55-59, and 60 and over.

The number of teachers in 1985-86 for each subject area was divided into the above age intervals and used as the entering group for a cohort survival projection. By multiplying each subgroup of teachers in 1986-87 by the appropriate retention rate, the number of teachers from the original group expected to remain in 1987-88 was projected for each age group within major subject areas. The same retention rates were then used to project 1988-89 teachers remaining by using the projected 1987-88 figures. In this manner the projection was carried through 1991-92.

Finally, for each school year, the number of classroom teachers expected to remain was subtracted from the projected number of classroom teachers to obtain the number of positions to be filled.

The above procedure was applied to New York City and the State exclusive of New York City as independent sectors. The projection for the total State was accomplished by adding the two sectors.

Detailed reports on trends and projections of classroom teacher age distributions, median age, and retention rates by subject area are available on request.

* Adjustments were made to the basic projection methodology to reflect increases for selected subject areas as the Regents Action Plan is implemented between 1986-87 and 1990-91. The adjustments, which were reported in Regents Action Plan Cost Estimates, October 4, 1984 are based on estimates of the proportion of students at each grade level who will need to complete additional coursework to meet new graduation requirements in the areas of math, science, foreign language, social studies and fine arts. The estimates, derived from High School and Beyond, A Longitudinal Study of the 1980's, were applied to projected secondary enrollment for 1987-88 through 1991-92.

**From Projections of Public and Nonpublic School Enrollment and High School Graduates to 1996-97, The University of the State of New York, Information Center on Education, August 1987.

APPENDIX B

METHODOLOGY FOR PROJECTIONS OF PUBLIC SCHOOL CLASSROOM TEACHER VACANCIES TO BE FILLED BY NEW (FIRST-YEAR) TEACHERS

Because past experience has shown that only a minor proportion of all teacher vacancies are filled by first-year (or "new") teachers, it became important to estimate the numbers of such persons who will be needed to fill the projected vacant positions.

An eleven-year trend analysis (1976 to 1986) of teacher vacancies, net position changes and positions filled by new teachers is presented in Appendix C. From 1975 to 1981, the percent of new teachers in filled vacancies remained relatively stable, close to 20 percent. In 1982, this percentage dropped dramatically to a level of around 13 to 16 percent for two years, followed by increases to 21 percent in 1984 and 27 percent by 1986. Because of the instability of this statistic in recent years it has only limited value as a factor in projecting new teachers.

A second approach to projecting new teachers was to relate new teachers to the total number of teachers in the teaching force. Based on this approach, trends and projections of the percent of new teachers in the teaching force for 1983-84 through 1991-92 were developed and are displayed by subject area in Appendix D for New York State, New York City and the State exclusive of New York City. Data for 1983-84 through 1985-86 show a steady increase in the percentage of new teachers for each of the sectors. The percentage then decreases slightly in New York City from 1985-86 to 1986-87, but continues to increase in the remainder of the State.

The second approach appeared to be more reliable because the relationship of new teachers to the total teaching force shows a more definite trend, whereas the relationship of new teachers to vacancies to be filled has been highly unstable since 1980. The problem in using this approach is that the statistic for new teachers as a percent of total teachers must be projected for 1987-88 through 1991-92. If the trend lines are extrapolated for New York City, the number of new teachers hired would exceed 40 percent of the overall vacancies filled by 1991. For the remainder of the State, a similar extrapolation results in a number of new teachers which would approach 50 percent of overall vacancies filled by 1991. Based on historical data presented in Appendix C, it is not likely that the percent of vacant positions filled by new teachers will be as high as the percent projected by extrapolating the trends exhibited over the past four years.

What was needed was a method of projecting the above percent by moderating the current trend instead of performing a straight arithmetic extrapolation. A very general approach to the project was taken because little is known about the pool of experienced qualified teachers in the labor force who have been employed in professions outside of the field of education but would accept teaching positions if offered the opportunity. In prior years, most vacancies have been filled from this pool.

The final technique developed for the model made use of both sets of ratios (i.e., new teachers to teacher vacancies and new teachers to total teaching force) for each of the 15 subject areas selected for the report. Projected ratios were adjusted based on changes in vacancies to be filled from year to year and moderating the results by a factor based on the net change in the teaching force. The final results are presented in Tables 3, 6 and 9 for New York State, New York City and New York State exclusive of New York City respectively. Technical detail, including the formulas developed for this technique, are available on request.

APPENDIX C

PUBLIC SCHOOL TEACHING POSITIONS FILLED BY NEW TEACHERS

NEW YORK STATE

1975-76 TO 1985-86

Year (Fall)	Total Vacancies (FTE)	Net Position Change	Positions To Be Filled	Number Filled By New Teachers	Percent Filled By New Teachers
1975 to 1976	19,873	- 8,502	11,371	2,627	23.1 %
1976 to 1977	15,919	+ 1,906	17,825	3,060	17.2
1977 to 1978	16,644	- 306	16,338	3,399	20.8
1978 to 1979	17,122	- 3,399	13,723	3,093	22.5
1979 to 1980	16,563	- 3,489	13,074	2,385	18.2
1980 to 1981	14,032	- 560	13,472	2,629	19.5
1981 to 1982	15,093	- 611	14,482	1,950	13.5
1982 to 1983	13,352	+ 1,960	15,312	2,456	16.0
1983 to 1984	14,131	+ 2,072	16,203	3,435	21.2
1984 to 1985	14,812	+ 3,911	18,723	4,947	26.4
1985 to 1986	15,430	+ 818	16,248	4,452	27.4

APPENDIX D-1

TRENDS AND PROJECTIONS OF PERCENT OF TOTAL PUBLIC SCHOOL TEACHING POSITIONS FILLED BY NEW TEACHERS
NEW YORK STATE
1983-84 TO 1991-92

Subject Area	Percent of Total Teachers								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	1.6%	2.6%	3.6%	3.2%	4.5%	4.2%	4.1%	4.7%	4.4%
Common Branch	0.8	1.7	2.8	2.5	3.0	3.0	2.9	2.8	2.9
Other [a]	1.3	1.9	3.4	3.2	3.7	3.7	3.6	3.5	3.6
Total	1.0	1.8	3.0	2.7	3.3	3.2	3.1	3.1	3.2
Secondary (7-12)									
English	0.9	1.7	2.4	2.1	2.7	2.6	2.9	3.2	3.2
Foreign Languages	1.3	1.9	4.0	4.2	6.4	10.0	3.2	1.8	3.1
Mathematics	1.5	2.4	2.9	2.3	2.3	2.3	2.6	3.0	2.6
Science	1.6	2.0	3.8	3.2	3.2	3.3	3.7	4.2	3.4
Social Studies	0.6	1.2	2.4	2.3	2.4	5.8	2.6	2.9	2.9
Occupational Education	1.7	1.7	2.3	2.5	1.4	1.4	1.6	1.8	1.9
Other [b]	1.6	1.9	2.7	2.5	1.9	1.8	2.2	2.5	2.5
Total	1.3	1.8	2.9	2.6	2.6	3.6	2.6	2.8	2.8
Combined Elementary and Secondary (K-12)									
Special Education	4.2	4.3	4.0	3.4	3.3	3.2	3.4	3.4	3.4
Physical Education and Recreation	1.0	1.6	1.8	1.8	1.8	1.9	2.0	2.0	2.0
Library	0.9	0.8	1.3	2.2	1.2	1.3	1.4	1.4	1.4
Reading	0.6	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.2
Bilingual Education	1.9	2.7	4.6	3.8	4.9	4.9	5.1	5.2	5.4
Total	2.6	2.9	3.0	2.6	2.7	2.7	2.8	2.8	2.8
GRAND TOTAL	1.5	2.1	2.9	2.6	2.9	3.3	2.8	2.9	2.9

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

NOTE: BOCES teachers are not included.

APPENDIX D-2

TRENDS AND PROJECTIONS OF PERCENT OF TOTAL PUBLIC SCHOOL TEACHING POSITIONS FILLED BY NEW TEACHERS
NEW YORK CITY
1983-84 TO 1991-92

Subject Area	Percent of Total Teachers								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	2.5%	3.8%	4.6%	3.6%	7.2%	6.4%	6.3%	7.6%	7.3%
Common Branch	1.8	3.2	5.4	4.2	5.5	5.7	5.5	5.4	5.6
Other [a]	0.8	1.9	4.4	3.0	3.7	3.9	3.9	3.8	3.9
Total	1.8	3.1	5.2	4.0	5.5	5.6	5.4	5.4	5.6
Secondary (7-12)									
English	0.8	2.4	4.7	3.1	5.2	5.2	5.2	5.2	5.2
Foreign Languages	1.5	2.3	5.2	4.4	10.4	13.8	4.5	2.5	4.8
Mathematics	1.5	3.3	4.8	3.0	3.9	3.9	4.1	4.4	4.5
Science	1.1	2.4	5.0	3.8	4.7	4.8	4.8	4.9	4.9
Social Studies	0.7	2.1	5.4	4.5	4.8	8.8	5.0	4.9	5.0
Occupational Education	1.4	1.6	2.9	3.1	2.8	2.8	2.8	2.8	2.8
Other [b]	1.1	1.8	4.8	2.7	1.7	1.7	1.8	1.9	2.0
Total	1.1	2.3	4.7	3.4	4.4	5.5	4.0	3.8	4.1
Combined Elementary and Secondary (K-12)									
Special Education	4.5	4.8	4.0	3.2	4.0	4.1	4.2	4.4	4.5
Physical Education and Recreation	0.7	1.5	2.4	1.9	1.7	1.8	1.8	1.9	1.9
Library	0.5	0.3	0.6	1.1	0.8	0.8	0.8	0.8	0.8
Reading	2.8	1.2	1.6	1.3	1.6	1.5	1.5	1.6	1.6
Bilingual Education	2.0	2.4	4.6	4.1	4.7	4.9	5.0	5.2	5.4
Total	3.2	3.6	3.6	2.9	3.4	3.6	3.6	3.8	3.9
GRAND TOTAL	2.0	3.0	4.5	3.4	4.5	4.9	4.4	4.4	4.5

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

APPENDIX D-3

TRENDS AND PROJECTIONS OF PERCENT OF TOTAL PUBLIC SCHOOL TEACHING POSITIONS FILLED BY NEW TEACHERS
NEW YORK STATE EXCLUSIVE OF NEW YORK CITY
1983-84 TO 1991-92

Subject Area	Percent of Total Teachers								
	Actual				Projected				
	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Elementary (K-6)									
Kindergarten	1.1%	1.9%	3.0%	3.0%	2.9%	2.8%	2.8%	3.1%	2.7%
Common Branch	0.4	1.0	1.6	1.7	1.9	1.8	1.7	1.7	1.7
Other [a]	1.5	1.9	2.9	3.3	3.7	3.6	3.4	3.4	3.5
Total	0.6	1.2	1.9	2.1	2.2	2.1	2.0	2.0	2.0
Secondary (7-12)									
English	1.0	1.4	1.5	1.8	1.7	1.5	1.9	2.4	2.4
Foreign Languages	1.3	1.7	3.5	4.2	4.7	8.3	2.6	1.5	2.4
Mathematics	1.5	2.0	2.2	1.9	1.7	1.6	2.0	2.4	1.8
Science	1.7	1.8	3.4	2.9	2.6	2.7	3.3	4.0	2.9
Social Studies	0.6	0.8	1.3	1.5	1.3	4.5	1.5	1.9	2.0
Occupational Education	1.8	1.8	2.1	2.3	0.9	0.8	1.0	1.3	1.6
Other [b]	1.8	1.9	2.1	2.4	2.0	1.9	2.3	2.8	2.8
Total	1.4	1.6	2.2	2.3	2.0	2.8	2.1	2.4	2.3
Combined Elementary and Secondary (K-12)									
Special Education	4.0	3.8	4.0	3.5	2.6	2.4	2.6	2.5	2.3
Physical Education and Recreation	1.0	1.6	1.6	1.8	1.9	1.9	2.1	2.1	2.0
Library	1.1	0.9	1.5	1.6	1.4	1.5	1.6	1.6	1.5
Reading	0.5	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0
Bilingual Education	1.8	3.8	4.6	2.8	6.0	5.0	5.2	5.3	5.3
Total	2.2	2.4	2.6	2.4	2.1	2.0	2.1	2.1	2.0
GRAND TOTAL	1.3	1.7	2.2	2.2	2.1	2.4	2.1	2.2	2.1

[a] Includes English, foreign languages, mathematics, science, social studies, art, music, industrial arts, health education and home economics.

[b] Includes art, music, home economics (nonoccupational), health education and "other" unclassified secondary subjects.

NOTE: BOCES teachers are not included.